

Commonwealth of Kentucky
Division for Air Quality
EXECUTIVE SUMMARY

FINAL

Title V, Construction / Operating

Permit: V-05-067

Carbide Industries, LLC

3204 Industrial Parkway, KY HWY 1523

Calvert City, KY 42029

June 26, 2007

Vahid Bakhtiar, Reviewer

SOURCE ID: 21-157-00025

SOURCE A.I. #: 2928

ACTIVITY ID: APE20040001

SOURCE DESCRIPTION:

Carbide Industries, LLC located in Calvert City, Kentucky operates primarily an Industrial Inorganic Chemical – calcium carbide production facility. Acetylene is also produced at the facility as well as desulfurization reagents, calcium hydroxide, and electrode paste. The products are sold to a wide range of industries from acetylene producers, chemical manufacturers, steel foundries to aluminum producers.

The Calvert City facility produces calcium carbide from coke and lime in a 35 MW semi-sealed 3-phase submerged electric arc furnace. The calcium carbide is crushed and sized per customer specifications. Desulfurization reagents are produced by grinding calcium carbide in a ball mill to produce a very fine particle size and may be blended with various additives. Acetylene is also produced by the introduction of calcium carbide into water. The acetylene is then piped to the customer. The byproduct of the acetylene production, calcium hydroxide, is also shipped or piped to the customer. Electrode paste is produced by combining calcined coal and coal tar pitch. The pitch is heated to a semi-fluid state while mixing by a 2.009 mmBtu/hr natural gas process steam boiler. All raw materials are received and solid products are shipped via railcar or truck.

U.S. EPA REVIEW:

The Division has issued the proposed permit on April 17, 2007. The U.S. EPA was notified of the issuance of the proposed permit on April 13, 2007 via e-mail. The comment period expired 45 days from the date of e-mail. Comments were received during this period from the facility. Minor changes were made to the permit as a result of the comments received, however the Division has concluded that the proposed operation will comply with all air quality regulations and requirements. Therefore, the permit is now being issued final.

The changes made to the proposed permit are as follows:

- On page 5 for Compliance Demonstration c. Particulate matter, the following paragraph related to 59:010 was deleted:

“Compliance with the hourly emission limit shall be determined as follows:

Hourly Emission Rate (lb/hr) = [Monthly product produced (tons/month) x Emission Factor as determined from AP-42 * (lb/hr) / Hours of operation per month (hrs/month)] x (1 – Control Efficiency)

* If an Emission Factor other than that taken from AP-42 is used, documentation on how that Emission Factor was derived must be submitted to the Division’s Central Office for approval.”

- On page 7 for 3. Testing Requirements, the following requirement was deleted:
 - d. Opacity:
The permittee shall perform Reference Method 9 as specified under Condition **4. Specific Monitoring Requirements.**
- On page 8 for 4. Specific Monitoring Requirements, this requirement was removed:
 - h. The permittee shall monitor on a monthly basis:
 - i. material process rate;
 - ii. material produced; and
 - iii. operation hours for each emission unit.
- On page 11 for 4. Specific Monitoring Requirements, the following requirement was added. This requirement was already in the draft permit.
 - c. The facility shall monitor the pressure drop across the baghouse weekly and ensure all parameters remain within the range recommended by the manufacturer and/or standard operating practices.
- In the Statement of Basis, all the references to calcining were deleted since this process is not in the permit.
- In the Summary Form, some minor typo errors were corrected in emissions summary table.